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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/771,275	01/26/2001	Konstantinos I. Papathomas	EN995064BVUS4	7979

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ART UNIT	PAPER NUMBER
1711	12

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Please find below and/or attached an Office communication concerning this application or proceeding.

T.D

Office Action Summary	Application No. 09/771,275	Applicant(s) PAPATHOMAS ET AL.	
	Examiner Susan W Berman	Art Unit 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 July 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-24,27-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-24,27-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Information Disclosure Statement

Abstracts submitted 07-26-2002 for the Japanese references listed on the Information disclosure statement filed 01-08-2002 have been considered and the initialed IDS is attached hereto.

Response to Amendment

The objection to the specification is hereby withdrawn in response to amended claim 23.

Applicant has amended claim 13 to recite that the "resin precursor substantially consists of ...". The examiner has not found any description within the specification of the phrase "substantially consists of" that defines the amount of cyanate ester that would be considered to be "substantial", thus defining the phrase "substantially consists of". Therefore, the claim amended is not considered to distinguish the instant claims from the prior art disclosures. It is noted that applicant does not employ ethylenically unsaturated precursors. The phrase "consists essentially of" could be used to exclude the ethylenically unsaturated precursors disclosed in the prior art. However, this claim language would also exclude epoxy resin precursor and the toughening agents and flexibilizers taught by applicant on pages 25-28.

Response to Arguments

The rejections of record over Gelorme et al are withdrawn in response to the statement by applicant's attorney that US Patent 5,464,726 and the instant invention were commonly owned by or subject to assignment by International Business Machines Corporation at the time of invention on page 9 of paper number 11.

Applicant's arguments filed 07-26-2002 have been fully considered but they are not persuasive. With respect to the obviousness-type double patenting rejection of record, the claims of US 6,129,955 set forth photocuring of the compositions. Christie et al is relied upon for teaching that cyanate esters and/or polyepoxides are useful for providing a solder interconnection. Therefore, the rejection is maintained. The rejections of claims under 35 USC 103(a) are maintained for the reasons set forth above in "Response to Amendments".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 13-22, 24 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christie et al (5,250,848) in view of Gaku et al (4,554,346).

Christie et al disclose a method for encapsulating C4 connections and pin heads (column 7, lines 1-16). Solder interconnections are filled with a composition comprising a cycloaliphatic polyepoxide and/or a curable cyanate ester and a filler having a maximum particle size of 31 microns and cured by heating. Christie et al do not teach employing a photoinitiator, such as an onium salt, and photocuring in the disclosed method. Gaku et al disclose curable resins comprising a cyanate ester compound, a hydroxy-functional ethylenically unsaturated compound and a photoinitiator that provide products having excellent heat resistance and electrical properties. Reinforcing agents and fillers taught by Gaku et al include epoxy resins, elastic rubbers, silica, alumina and boron nitride (columns 6-7).

It would have been obvious to one skilled in the art to employ a photoinitiator and photocuring in the compositions and method disclosed by Christie et al, as suggested by Gaku et al in analogous art. The reason is that Christie et al and Gaku et al disclose compositions comprising the same polymerizable components. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation that photocuring would provide the same product as heating since the polymerizable components are the same. It would have been obvious to one skilled in the art to include the reinforcing agents and fillers taught by Gaku et al in the compositions disclosed by Christie et al in order to obtain the reinforcing and filler properties of these additives taught by Gaku et al. With respect to claim 17, It would have been obvious to one skilled in the art to select diphenyliodonium initiator from

those taught by Gaku et al because Gaku et al teach that any of the disclosed initiator/sensitizers can be used and because the compositions taught by Christie et al include epoxy compounds that are known to be photocurable in the presence of iodonium initiators.

Claims 13-16, 18-22 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christie et al (5,250,848) in view of McCormick et al (5,744,557).

The disclosure of Christie et al is discussed above. McCormick et al teach cyanate ester/free radically polymerizable monomer adhesives for electronic adhesives. See column 19, line 611, to column 23, line 22. McCormick et al teach that the disclosed catalyst system of organometallic curative and free radical generators may be activated thermally or photochemically or by both methods in combination (column 6, lines 37-40, and column 20, lines 17-21). Other photoinitaitors are taught in column 11, lines 40-50.

It would have been obvious to one skilled in the art to employ an organometallic catalyst system and photoinitiation, as taught by McCormick et al, in the compositions and method disclosed by Christie et al. The reason is that Christie et al and McCormick et al disclose compositions comprising the same cyanate ester and epoxy polymerizable components. McCormick et al teach that cyanate ester/epoxy compositions can be photocured and provide adhesives for electronic applications. Therefore, one of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation that photocuring the cyanate ester compositions taught by Christie et al would provide the same product as heating since the polymerizable compositions taught by McCormick et al also comprise cyanate esters.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Christie et al (5,250,848) in view of Gaku et al or McCormick et al, as applied to claim 13 above, and further in view of

Papathomas et al (5,194,930). Christie et al teach using silica filler optionally treated with a coupling agent. Papathomas et al disclose amino- and epoxy-functional silane coupling agents for treating high purity fused or amorphous silica in compositions analogous to those taught by Christie et al, Gaku et al and McCormick et al (column 10, lines 47-56). It would have been obvious to one skilled in the art to employ the coupling agents taught by Papathomas et al as the coupling agent taught by Christie et al. The coupling agent taught in the prior art corresponds to the surface treating agents instantly disclosed, as is well known in the art.

Double Patenting

Claims 13-24 and 27-29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of U.S. Patent No. 6,129,955 in view of Christie et al. Although the conflicting claims are not identical, they are not patentably distinct from each other because the comprising language of the claims of US '955 encompasses compositions including a cyanate ester, such as the cyanate esters disclosed in columns 11-12 of the patent. Christie et al teach, in analogous art, that compositions comprising a cycloalipahtic polyepoxide and/or cyanate ester or prepolymer thereof are useful for providing a solder interconnection. It would have been obvious to one skilled in the art to include a cyanate ester compound in the polyepoxide compositions used in the method claimed in US '955 and to photocure the compositions as set forth in the claims.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Berman whose telephone number is (703) 308-0040.

The fax number for this group is (703) 872-9310 or, for submissions after Final Rejection, (703) 872-9311.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist at telephone number (703) 308-0661.

Susan Berman

Susan Berman
Primary Examiner
Art Unit 1711

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10/04/02